## CLAIMS

**WHAT IS CLAIMED IS:**

1. A pressure sensor comprising:

(a) a surface acoustical wave conductive body having an input transducer disposed to transmit a directional acoustical wave across at least a surface portion of the body;

(b) at least one reflection transducer disposed to receive and reflect the acoustical wave back as a reflected signal;

(c) a pressure transducer disposed adjacent to the surface acoustical wave conducting body, the pressure transducer comprising a flexible conductive membrane;

(d) a cavity sealed by the membrane at a preset reference pressure; and

(e) the membrane deflecting responsive to a predetermined external pressure level to contact the reflection transducer and modulate the signal reflected by the reflection transducer.

2. A pressure sensor according to claim 1, wherein the reflection transducer comprises a plurality of conductive fingers disposed serially along the surface portion of the conductive body, the membrane deflecting responsive to the external pressure level to establish electrical contact with at least one conductive finger to modulate the signal reflected by the one conductive finger.

3. A pressure sensor according to claim 2, wherein the modulated signal from the one conductive finger identifies the pressure sensor.

4. A pressure sensor according to claim 1, wherein the reflection transducer is switched between an electrically floating state and an electrically grounded state through contact with the conductive membrane.

5. A pressure sensor according to claim 1, wherein the reflection transducer comprises a plurality of conductive fingers deployed along the conductive body, at least one conductive finger switching between an electrically floating state and an electrically grounded state through electrical contact with the conductive membrane.

6. A pressure sensor according to claim 5, wherein the extent of membrane deflection is determined by the external pressure level.

7. A pressure sensor according to claim 5, wherein a signal reflected from the one conductive finger is modulated from electrical contact with the conductive membrane.

8. A pressure sensor according to claim 7, wherein the one conductive finger of the plurality of conductive fingers that is contacted by the membrane is determined by the extent of membrane deflection.

9. A pressure sensor according to claim 8, wherein the extent of membrane deflection is indicative of the external pressure level.

10. A pressure sensor comprising:

(a) a surface acoustical wave conductive body having an input transducer disposed to transmit a directional acoustical wave across at least a surface portion of the body;

(b) at least one reflection transducer disposed to receive and reflect the acoustical wave back as a reflected signal, the reflection transducer comprising at least one conductive finger switching between an electrically floating state and an electrically grounded state;

(c) a pressure transducer disposed adjacent to the surface acoustical wave conducting body, the pressure transducer comprising a flexible conductive

membrane; a cavity sealed by the membrane at a preset internal reference pressure; and

(d) the membrane deflecting responsive to a predetermined external pressure to electrically engage and ground the one conductive finger to modulate the signal reflected by the one conductive finger.

11. A pressure sensor according to claim 10, wherein the membrane deflects and electrically grounds the conductive finger when the external pressure is substantially greater than or equal to the preset internal membrane pressure.

12. A pressure sensor according to claim 10, wherein the membrane engages at least one conductive contact region of the sensor body in the deflected state, the contact region being electrically connected with the one conductive finger.

13. A pressure sensor according to claim 12, wherein the contact region comprises a raised mesa.

14. A pressure sensor according to claim 10, wherein the reflection transducer comprises a plurality of conductive fingers, at least one of the conductive fingers being in electrical engagement with a respective conductive contact region of the sensor body, the membrane engaging the contact region in the deflected state to ground the one conductive finger.

15. A pressure sensor according to claim 14, wherein a signal reflected from the one conductive finger is modulated to convey information operatively identifying the pressure sensor.

16. A method for sensing pressure comprising the steps:

(e) transmitting an acoustical wave across at least a surface portion of a sensor body;

(f) positioning a reflection transducer to intercept the acoustical wave and reflect a signal back;

(g) positioning a pressure transducer adjacent to the sensor body, the pressure transducer comprising a flexible conductive membrane, a cavity sealed by the membrane at a preset internal reference pressure;

(h) deflecting the membrane into electrically contacting engagement with the reflection transducer responsive to the presence of a predetermined external pressure level; and

(i) modulating the signal reflected by the reflection transducer by electrical engagement between the reflection transducer and the deflected membrane.

17. A method according to claim 16, further comprising the step of utilizing a reflection transducer comprising a plurality of conductive fingers, and one of the fingers being selectively contacted by the deflecting membrane to modulate the signal reflected by the one conductive finger.

18. A method according to claim 16, further comprising the step of utilizing a reflection transducer comprising a plurality of conductive fingers, the membrane selectively contacting an alternative conductive finger depending upon a degree of deflection undergone by the membrane in response to the external pressure level.

19. A method according to claim 16, further comprising the step of utilizing a sensor body having a conductive contact region extending between the reflection transducer and the membrane in a deflected condition.

20. A method according to claim 16, further comprising the step of transmitting an input signal to the sensor body for initiating the transmission of the acoustical wave and receiving the modulated reflected signal from the reflection transducer.